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AIR FORCE MANPOWER AND PERSONNEL CENTER RANDOLPH AFB TX F/6 9/2
AGEFORCE - A FORCE STRUCTURE AGEING MODEL: USERS MANUAL. (U)

DEC 79 J R STRATTON

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B.S.

READ INSTRUCTIONS
BEFORE COMPLETING FORM

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This Ageforce Aggregate Model provides a quick response force prediction tool for any force which can be defined in year-groups (up to 30) with associated retention rates. There are two options available to handle accessions to the force. The first is where a user provides accession numbers for each simulation year. The second is where a user provides a desired force level and the simulation year it wants to attain that level; the required accessions each year are then calculated by the model.		

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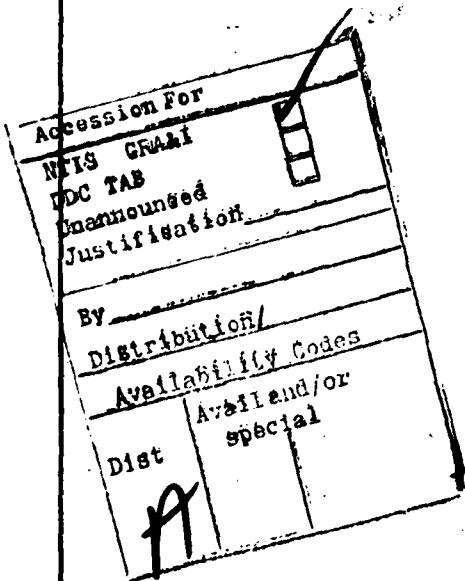
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Item 20 continued.

→ The model simulates losses and accessions for up to 30 years with various displays available. All interaction is on-line with the Air Force Manpower and Personnel Center's computer.



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- AGEFORCE -
A FORCE STRUCTURE AGEING MODEL
USERS MANUAL

DECEMBER 1979

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-AGEFORCE-

A FORCE STRUCTURE AGEING MODEL

USERS' MANUAL

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USERS' MANUAL
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SECTION 1. GENERAL

1.1 Purpose of the User's Manual. The objective of the User's Manual for RP/AGEFORCE is to provide the user's non-ADP personnel with the information necessary to effectively use the system.

1.2 Project References. RP/AGEFORCE is a generalized, on-line ageing model used to "game" the effects of various accessions and losses on a predetermined force. The program was developed at AFMPC for any user with access to the AFMPC computer.

Applicable documents are:

a. "AGEFORCE AGGREGATE MODEL," Capt Roger B. Boener, 2 August 1974.

b. DOD "Automated Data Systems Documentation Standards," Standard 7935.1-3, 13 September 1977.

1.3 Terms and Abbreviations

a. AGER - refers to RP/AGEFORCE

b. FORCE - user's group to be aged (i.e., active airmen, active officers, civilians, etc.)

c. FORCE STRUCTURE - Any population that can be classified (structured) by year-group, could be commissioned, enlisted, minority, civilian, etc.

1.4 Security and Privacy. AGER operates in an "UNCLASSIFIED" environment.

SECTION 2. SYSTEM SUMMARY

2.1 System Application. AGER is a quick-response prediction tool that can be executed from the user's work area over a Burroughs TD-800 terminal.

a. AGER provides some flexibility as the user has two options for inputting beginning force structures and retention rates. The first option is to enter force structures and retention rates for each run; desirable for one-time runs. The second option is to input force and rate data and save it on a computer disk file for subsequent use and reuse. With either option the user can change data by using AGER's update capability.

b. The user can also select either of two operating modes for AGER. The first is the simple ageing mode where retention rates are applied against force levels; accessions, if provided, are added in. The second is the steady-state mode where the goal is to attain a desired force level after a specified number of years. The model calculates the number of accessions needed each year to first attain the steady-state force, and then maintain that steady state force throughout the ageing period. In either mode, the resulting report shows the force distribution by year-group after each year of ageing, the losses each year, and the total force level each year.

2.2 System Operation. A user can run AGER anytime computer resources are available. The program is usually available during normal duty hours.

2.3 System Configuration. AGER runs on the BURROUGHS 6700 computer located at AFMPC, Randolph AFB, Texas. The system uses TD-800 terminals at various AFMPC user locations. All interaction is between these two devices.

2.4 System Organization. The system contains only one program, RP/AGEFORCE, which does all the processing.

2.5 Performance.

a. Input - all user inputs are via TD-800 terminal. The system asks for each input needed and states how it is to be entered.

b. Output - output is via TD-800 terminal transmitted directly to the user.

c. Response time - since AGER is on-line, response time is relatively quick.

d. Limitation - limitations are interactively provided by the system when it asks for an input.

e. Error rate - the system has built-in checks for input data errors. If an error exists in the input data, the system asks for the data again.

f. Processing time - due to user interaction throughout the processing cycle, processing time goes unnoticed.

g. Flexibility - AGER takes any force the user wishes to define by thirty or less year-groups whether it be Active Airmen, minority female officers, or navigators.

2.6 Data Base. The files that are referenced, supported, and kept current by AGER follow:

a. User's Force File. This file is referenced by AGER when the user asks for it. The twenty force groups are maintained as integer values with the twenty sets of retention rates maintained as real numbers.

b. Utilization File. This file is referenced and updated every time AGER runs.

2.7 General Description of Inputs, Processing, Outputs.

a. Inputs. All AGER inputs are accomplished via on-line interface with the user. The technique used is a branching method which asks "YES/NO" and specific data questions. The result of the inputs leads to a force with corresponding retention rates and various parameters for operating modes.

b. Processing. All processing is done on-line by the one program, RP/AGEFORCE.

c. Output. The output product the user receives is a TD-800 display showing the aged force by year-group and ageing years. An example is provided as Attachment 2.

SECTION 3. STAFF FUNCTIONS RELATED TO TECHNICAL OPERATIONS

3.1 INITIALIZATION. To run AGER a user must first follow standard sign-on procedures:

USER: sign-on by entering usercode and password

REMOTE RESPONSE: ENTER FUNCTION

USER: RUN AGE

AGER is now ready to run.

3.2 STAFF INPUT REQUIREMENTS. Before running AGER, a user should gather his force, retention rate and accessions data.

a. Cause of Input - inputs are required when displays from AGER ask for them. The force structures, retention rates and accessions will all be asked for separately.

b. Time of Input - all inputs should be prepared prior to running AGER.

c. Origin of Input - each user is responsible for gathering his own input data. The force must be defined in year-groups, retention rates by year-group, and accessions by the ageing year they will be gained.

d. Medium of Input - all input is via TD-800 series terminals.

3.2.1 Input Formats. AGER is tutorial; displays from the program will lead the user through required tasks. Following is a numerically ordered list of the typical displays AGER presents. In the next section, 3.2.2 Composition Rules, there is a corresponding list of descriptions for the displays and explanations of the inputs needed. Note that there are many ways to get through the program (see Attachment 3); the displays below represent the typical way when a user wants to make a data file and use force and rate groups from that file.

- (1) AGGREGATE MODEL TO AGE SELECTED ELEMENTS OF THE FORCE.
ENTER YOUR 7-DIGIT AUTOVON NUMBER (I.E. 487-2233).
THIS DATA IS ESSENTIAL FOR FILE MAINTENANCE AND MAY BE
USED TO VERIFY UTILIZATION. IF YOU DESIRE TO START
OVER AGAIN WHILE WORKING IN AGE FORCE JUST ENTER AN
'END' RESPONSE WHEN A 'YES' OR 'NO' RESPONSE IS
REQUESTED. BE CAREFUL THOUGH, IF YOU ENTER AN 'END' AT
ANY OTHER TIME THE PROGRAM MAY TERMINATE ABNORMALLY.
- (2) YOU DO NOT HAVE A SAVE FILE FOR FORCE AND RATE DATA.
DO YOU WANT TO CREATE A PERMANENT FILE? (ENTER YES OR NO)
- (3) DO YOU WISH TO MAKE CHANGES TO YOUR DATA? (ENTER YES OR NO)
- (4) DO YOU WISH TO CHANGE ANY OF YOUR FORCE GROUPS? (ENTER YES OR NO)
- (5) THERE ARE 20 FORCE GROUPS AVAILABLE FOR YOUR USE.
ENTER THE NUMERIC CODE (1-20) OF THE GROUP
YOU WISH TO USE.
- (6) THE CONFIGURATION OF GROUP (1-20) IS PRESENTLY AS FOLLOWS:
1-10 (VALUES OF FORCE LEVELS IN YR-GROUPS 1-10)
11-20 (VALUES OF FORCE LEVELS IN YR-GROUPS 11-20)
21-30 (VALUES OF FORCE LEVELS IN YR-GROUPS 21-30)
TO CHANGE THE FORCE LEVELS, INPUT YEARGROUP, LEVEL, YEARGROUP,
LEVEL, ETC., (EX: 2, 364, 12, 1024, *)
TERMINATE INPUT WITH AN ASTERISK.
YOU CAN CHANGE ANY OR ALL YEAR GROUPS THIS WAY.
- (7) DO YOU WISH TO CHANGE THE RETENTION RATES?
(ENTER YES OR NO)
- (8) RETENTION RATE GROUPS 1 THRU 20 ARE AVAILABLE.
ENTER THE NUMERIC CODE OF THE GROUP YOU WISH TO CHANGE.

(9) THE CURRENT RATES ARE:

YRS

1-10 (RETENTION RATES FOR YEAR GROUPS 1-10)
11-20 (RETENTION RATES FOR YEAR GROUPS 11-20)
21-29 (RETENTION RATES FOR YEAR GROUPS 21-29)

TO CHANGE RATES, INPUT YEARGROUP, RATE, YEARGROUP, RATE, ETC.
(EX: 2, .463, 15, .376, *).

TERMINATE INPUT WITH AN ASTERISK.

YOU CAN ENTER ANY OR ALL RATES THIS WAY.

(10) HOW MANY YEARS DO YOU WISH TO AGE THE FORCE 1-29?

(11) HOW MANY YEAR GROUPS DO YOU WISH TO DISPLAY 1-30?

(12) IF YOU WANT TO ACHIEVE AND MAINTAIN A STEADY-STATE FORCE
THEN ENTER THE FORCE LEVEL YOU WANT TO ACHIEVE. OTHERWISE
ENTER Ø (ZERO).

(13) HOW MANY YEARS DO YOU WANT TO TAKE
TO FIRST ACHIEVE THE STEADY-STATE FORCE? (1-29)

(14) IF YOU WOULD LIKE TO SELECT A FORCE GROUP THEN ENTER YES ELSE NO

(15) THERE ARE 20 FORCE GROUPS AVAILABLE FOR YOUR USE.
ENTER THE NUMERIC CODE (1-20) OF
THE GROUP YOU WISH TO USE.

(16) DO YOU WISH TO USE THE RETENTION RATES? (ENTER YES OR NO)

(17) RETENTION RATE GROUPS 1 THRU 20 ARE AVAILABLE FOR USE.
ENTER THE NUMERIC CODE OF THE GROUP YOU WISH TO USE.

(18) DO YOU INTEND TO USE THE SAME RETENTION RATES FOR
EVERY SIMULATION YEAR?
(ENTER YES OR NO)

(19) IF YOU WISH TO INPUT ACCESSIONS ENTER YES ELSE ENTER NO.

(20) ENTER ACCESSIONS FOR EACH OF THE (1-30) SIMULATION YEARS.
EX: 100, 300, 500 ETC.

(21) DO YOU WISH TO INPUT NEW RETENTION RATES FOR SIM YR (1-30)
ENTER YES OR NO

(22) IF YOU WISH TO RUN AGAIN ENTER YES ELSE NO

(23) END OF PROGRAM.

3.2.2 Composition Rules. Following is a description of the AGER displays and explanation of the necessary inputs. The paragraph numbers correspond to those of the actual displays in section 3.2.1 and the symbols in the processing flow chart.

(1) Your seven digit AUTOVON Phone number is used as a title for your force groups and retention rates file which is stored on a computer diskpack, and is also used to tally your utilization.

(2) This message means that there has not been a file created using the AUTOVON phone number entered. If you want to create one enter 'YES'. If you do not want a permanent file enter 'NO'.¹

(3) If you want to change any of your data enter 'YES'.¹ If you do not want to make changes to your data enter 'NO'.

(4) If you want to make changes to any of your force groups enter 'YES'. If you do not want to change your force group data enter 'NO'. All force groups are initially set equal to zero.

(5) You have twenty force groups available to you in your force file. Each force group contains 30 values, one for each year-group. Enter a number from 1 to 20 corresponding to the force group you want to use.

(6) This display shows what a particular force group looks like with the current force levels in each of the thirty year-groups. To change any of the force levels enter the year-group (1-30), followed by a comma, then the new force level, followed by a comma. You can change from one to all thirty this way. When you are finished entering your changes enter an asterisk. If you do not want to change any levels - maybe you just wanted to look at them - simply enter an asterisk only.

¹ Entering an 'END' will terminate that run of AGER.

² Suggest you make a chart to keep track of your force groups. See attachment 1 for an example.

(7) If you want to make changes to any of your retention rate groups enter 'YES'. If you do not want to make changes enter 'NO'.¹ All retention rates are initially set equal to 1.0.

(8) You have twenty retention rate groups available to you within your file. Each rate group contains 29 values, one for each year-group. Only 29 are necessary because no one is retained beyond the 30th year. Enter the numeric code 1 thru 20 of the group you wish to use.²

(9) This display shows what your rate group looks like with the current retention rates for each of the twenty-nine year groups. To change any of the rates enter the year group (1-29), followed by a comma, then the new retention rate, followed by a comma. The retention rate itself must contain a decimal point. You can change from one to all twenty-nine this way. When you are finished entering your changes enter an asterisk. If you do not want to change any of the rates simply enter an asterisk only.

(10) Enter the number of years you want to age the force.

(11) Enter the number of year-groups you want to look at.

(12) If you want to reach a certain manning level for your force and stay at that manning level, enter the force level you want to achieve. If you do not want a steady force enter '0'; accessions and losses will then dictate your force level.

(13) Enter the year of ageing you want your steady force to begin in. For instance, if you want to build up to your steady force by the fifth year of ageing enter a '5'.

(14) If you want to use a force group enter 'YES'.¹ If you would prefer to enter new force levels enter 'NO'.¹

(15) Same as (5).

(16) If you want to use a retention rate group enter 'YES'.¹ If you prefer to enter new retention rates enter 'NO'.¹

(17) Same as (8).

¹ Ibid.

² Ibid.

(18) You have the option of using the same retention rates for every year of ageing or you can enter new rates for each year of ageing. If you want to use the same rates for every ageing year enter 'YES'. If you do not enter 'NO'.¹

(19) If you want to enter accessions to be used in the ageing enter 'YES'. If you do not want to use accessions enter 'NO'.

(20) Enter the accessions you want to use for each of the ageing years. For instance, if you are ageing a force for five years, enter five accession figures followed by an asterisk.

Example: 100, 200, 500, 400, 200, * (100 corresponds to ageing year 1, 200 to ageing year 2, etc.).

(21) If you want to input new retention rates for the next ageing year enter 'YES'. If you do not enter 'NO'.¹

(22) If you want to run AGER again enter 'YES'. If you do not want to run again enter 'NO'.

(23) This display indicates AGER is finished running.

¹ Ibid.

FORCE GROUP	DESCRIPTION
1	AIRMEN DATA
2	AIRMEN MALE DATA
3	AIRMEN FEMALE DATA
4	BLANK
5	BLANK
6	OFFICER DATA
7	BLANK
8	OFFICER MALE DATA
9	BLANK
10	BLANK
11	OFFICER FEMALE DATA
12	BLANK
13	BLANK
14	BLANK
15	BLANK
16	BLANK
17	BLANK
18	BLANK
19	BLANK
20	BLANK

ATTACHMENT 1

4872233 . . . 6 YEAR FORCE STRUCTURE

YEAR GROUP	1	2	3	4	5	6
15	850	1101	1165	1024	934	855
14	1158	1225	1077	982	899	750
13	1299	1142	1041	953	795	535
12	1293	1179	1079	900	663	679
11	1337	1223	1020	752	770	731
10	1382	1153	850	870	826	623
9	1408	1038	1062	1008	761	628
8	1272	1301	1235	932	769	642
7	1530	1453	1097	905	755	453
6	1779	1343	1108	924	555	37
5	1351	1115	930	558	37	0
4	1126	939	564	37	0	0
3	964	579	38	0	0	0
2	587	39	0	0	0	0
1	41	0	0	0	0	0
LOSS	0	2932	2563	2240	1965	1727
STRN	22502	19570	17007	14767	12802	11075

ENTER OK FOR NEXT PAGE OF REPORT

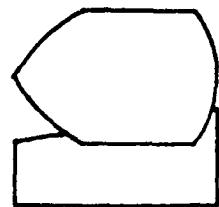
4872233 . . . 6 YEAR FORCE STRUCTURE

YEAR GROUP	1	2	3	4	5	6
30	0	0	0	0	0	0
29	0	0	0	0	0	0
28	51	47	38	38	23	15
27	78	64	63	39	25	13
26	105	103	64	40	21	22
25	172	107	67	36	37	38
24	168	106	57	58	59	47
23	168	90	91	93	75	66
22	229	232	236	190	168	167
21	486	493	398	352	350	347
20	720	581	514	511	507	551
19	754	667	664	659	716	929
18	712	709	703	764	991	1048
17	735	728	792	1027	1086	955
16	747	813	1054	1115	980	894
LOSS	0	2932	2563	2240	1965	1727
STRN	22502	19570	17007	14767	12802	11075

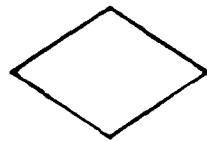
IF YOU WISH TO RUN AGAIN ENTER YES ELSE NO

USERS FLOW CHART

The flow chart on subsequent pages is provided as a "road map" for running AGER. The symbols used are explained below:



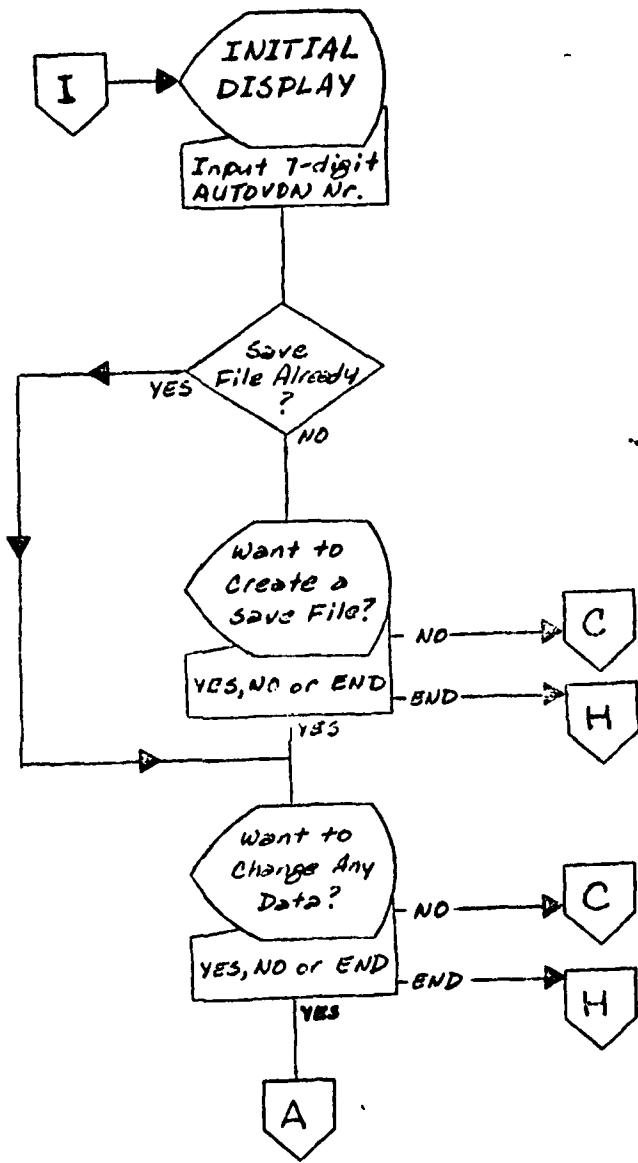
A display
requiring some
manual input
from the user.

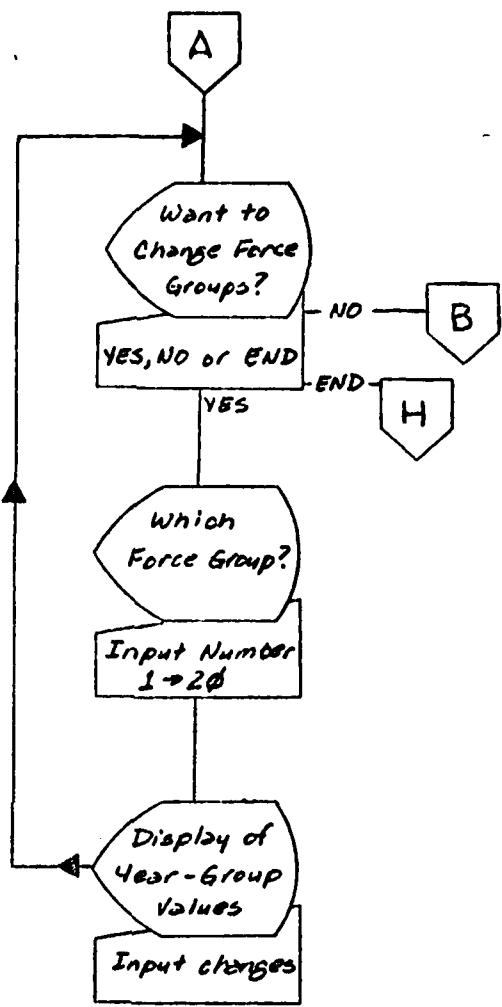


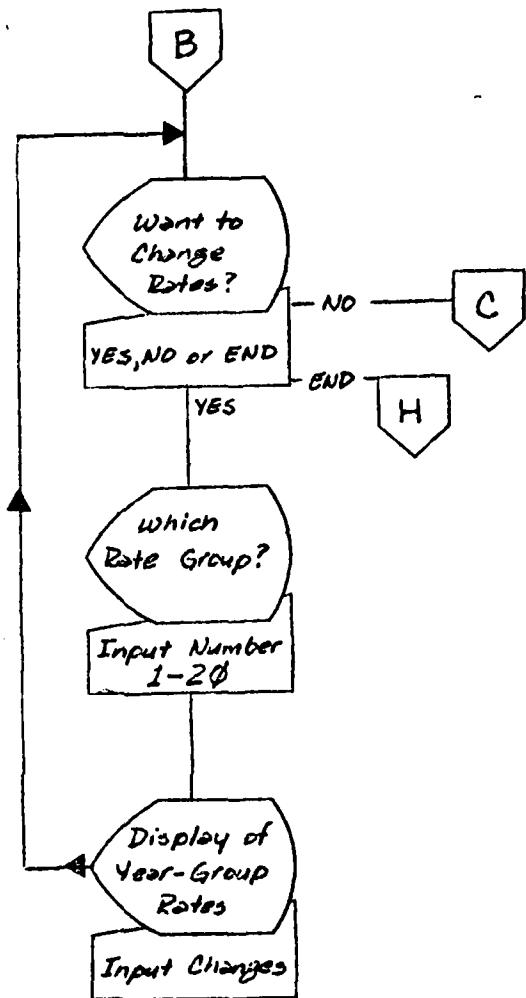
The computer program
makes a decision
here. Nothing is
required from the user.

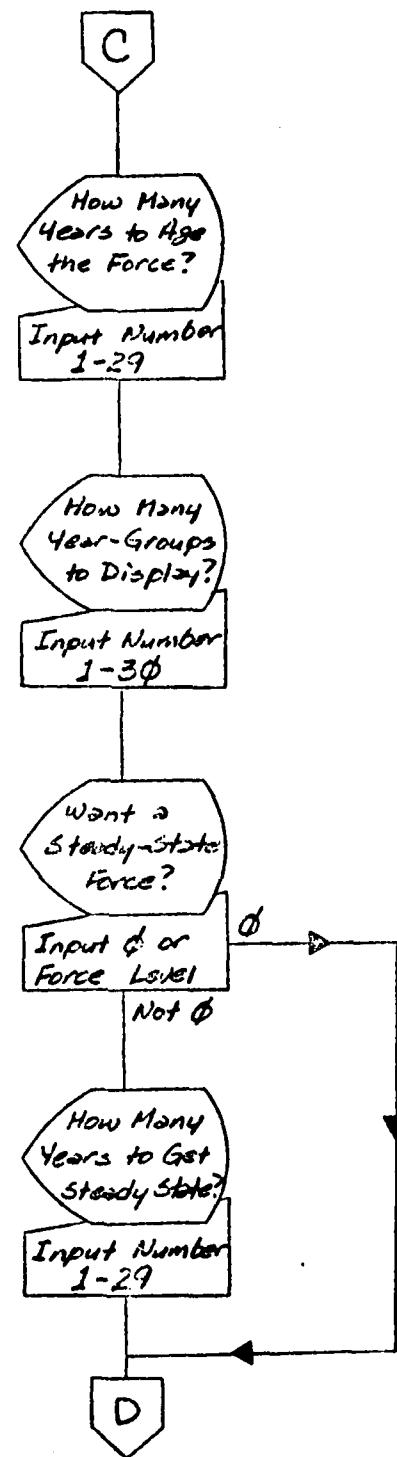


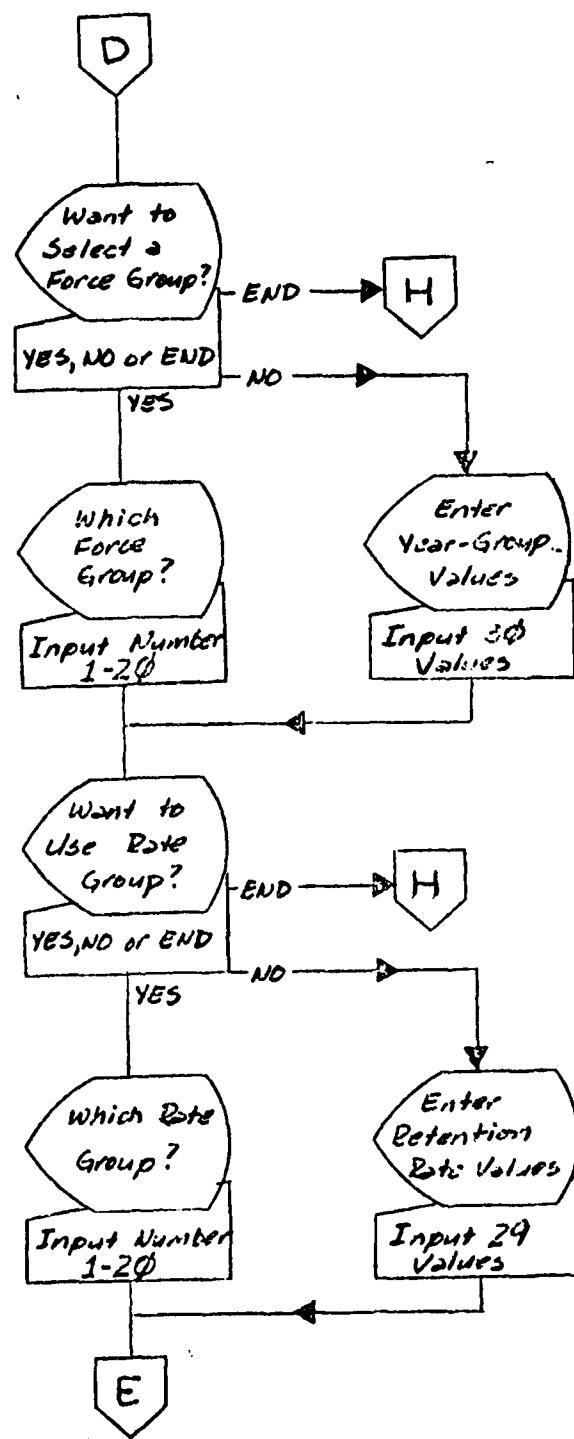
Connector to some
other page of this
flow chart.

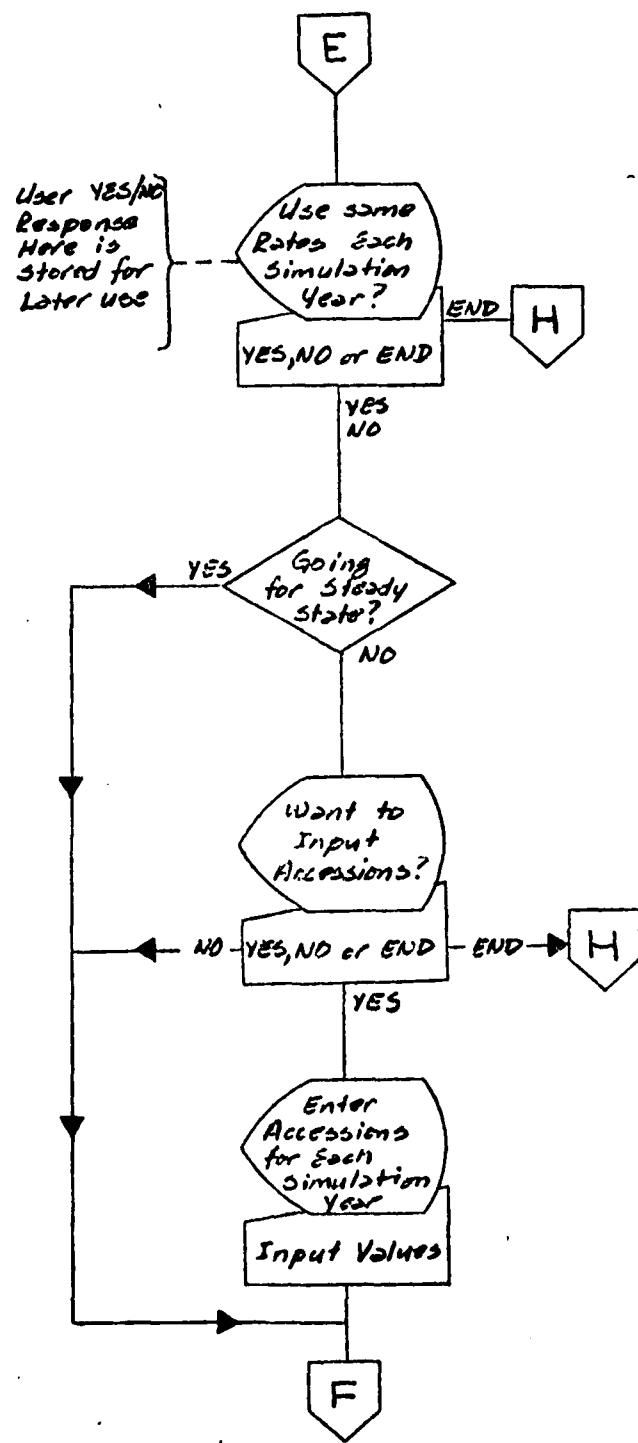


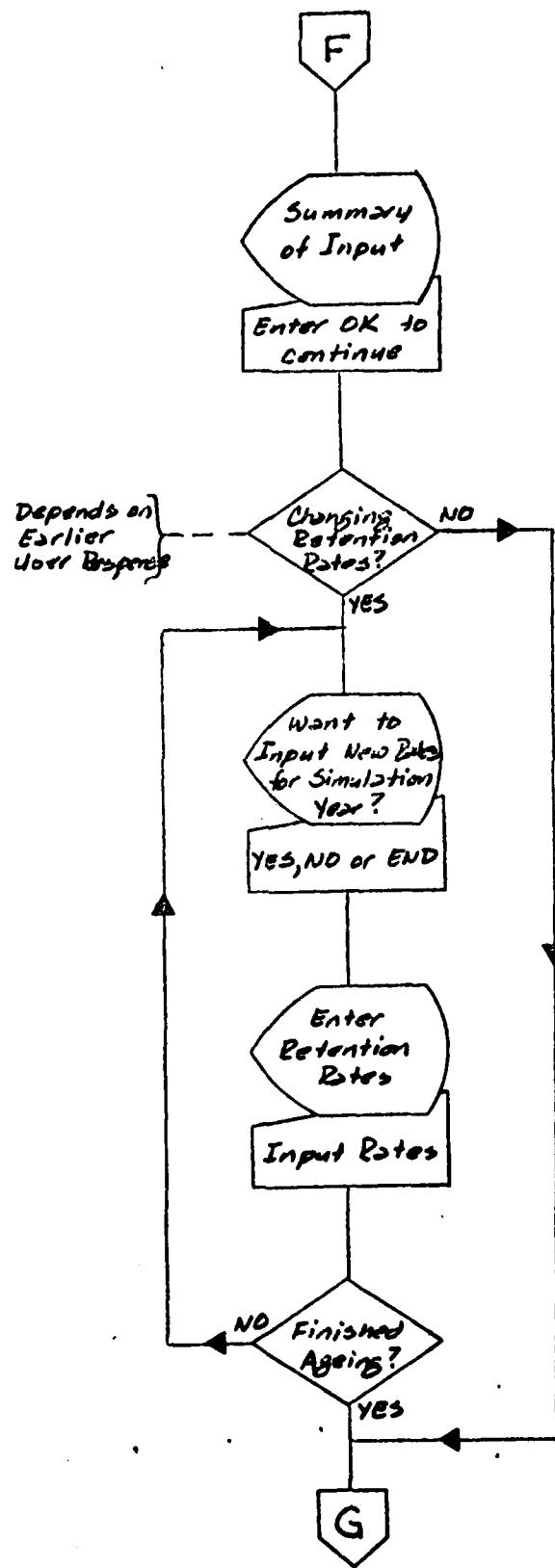


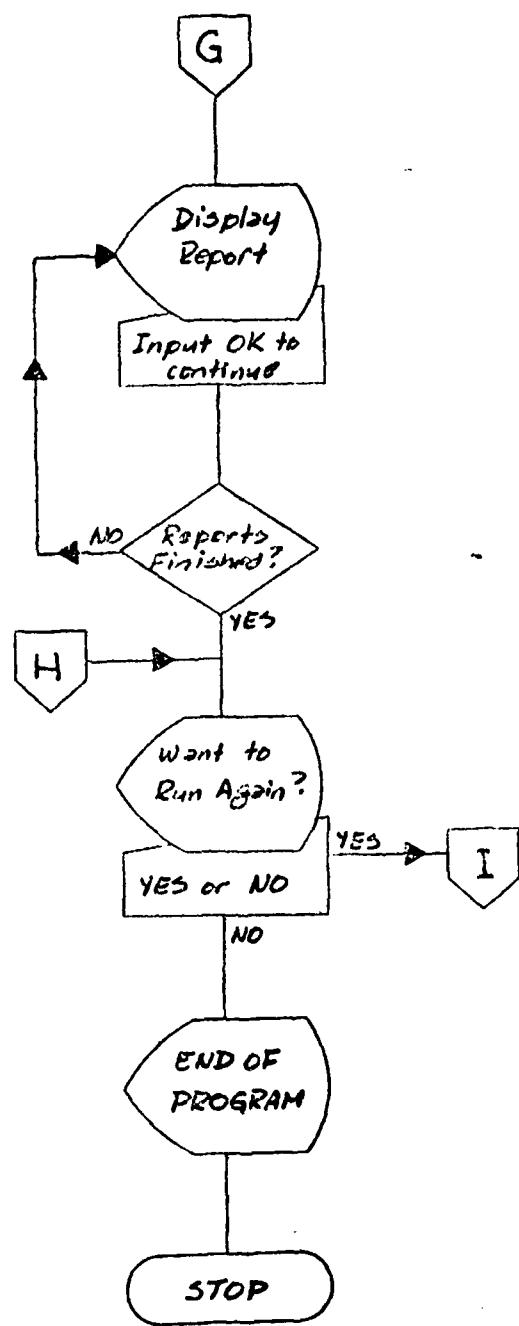












```

100      $ SET LIST ERRLIST          000001
200      BEGIN X AA               000002
300      COMMENT                 000003
400      *****                      000004
500      *****                      000005
600      *****                      000006
700      PROGRAMMER: A1C JAMES R. STRATTON 000007
800      LOCATION: AFMPC/MPCDDP7          000008
900          RANDOLPH AFB, TX. 78148      000009
1000     SPECIAL REMOTE CONTROL CHARACTERS USED IN THIS PROGRAM ARE: 000010
1100     4"0C00" - CLEAR AND HOME       000011
1200     4"3C00" - HOME (DC4)          000012
1300     4"13" - MOVES CURSOR UP ONE LINE (DC3) 000013
1400     4"11" - KEEPS REMOTE DEVICE IN RECEIVE MODE (DC1) 000014
1500     4"0D" - CARRIAGE RETURN      000015
1600     4"25" - LINE FEED           000016
1700     *****                      000017
1800     *****                      000018
1900     INTEGER ARRAY FORCE[0:31,0:31], FORCEHOLD[0:59]; 000019
2000     REAL ARRAY RETRATES[0:20], RETENHOLD[0:57]; 000020
2100     REAL      RHOOLD;          000021
2200     TRUTHSET FIRSTNUM("123456789"), 000022
2300         RESTNUM("0123456789"); 000023
2400     FILE INPUT(KIND=REMOTE, UNITS=CHARACTERS, MAXRECSIZE=1920, MYUSE=3), 000024
2500         OUTPUT(KIND=REMOTE, UNITS=CHARACTERS, MAXRECSIZE=1920); 000025
2600     FILE FORCEGROUPS(KIND=DISKPACK, 000026
2700         PACKNAME="GUSDATA.", MAXRECSIZE=30, BLOCKSIZE=450, 000027
2800         UNITS=WORDS, MYUSE=10, AREAS=5, AREASIZE=151; 000028
2900     FILE UTIL(KIND=DISKPACK, PACKNAME="GUSDATA.", MAXRECSIZE=4, 000029
3000         TITLE="AGEDFORCE/DATA/UTILIZATION.", MYUSE=10, 000030
3100         BLOCKSIZE=400, AREAS=1, AREASIZE=1000, UNITS=WORDS); 000031
3200     INTEGER YRSTORAGE, YRGPSD[SP], YRSTOSTEADY, STEADYFORCE, ACCSPERYR, TEMP, 000032
3300     11, 12, 13, 14, 15, TIM, REC, TA1, TAT1; 000033
3400     EBCDIC ARRAY REPTNAME[0:10], REPLY[0:5], TITLEARRAY[0:25], TITHOLD[0:25], 000034
3500         URAY[0:23]; 000035
3600     BOOLEAN STEADYSTATE, ACCESSONSINPUT, CHGRATES, DIDRUN, GOTTITLE, GOTFILE; 000036
3700     LABEL; 000037
3800     INPUTDATA, INITIALIZATION, STEADYPROC, NOTYET, REENTRY, WINDUP, 000038
3900     FINISHED, OLDRATES, OLDEVELS, OLDACCS, NEXTPAGE0, NEXTPAGE1, NEXTPAGE2, 000039
4000     AGEYEARS, DISPLAYYEARS, STEADYEAR, REUSEFORCE, REUSERATES, REUSEACCS, NEXTPAGE, 000040
4100     ACCESSONSIN, BIGPICTURE, NEXTPAGE3, RATECHGREQ, CHGCHECK, NEXTPAGE4, THEEND; 000041
4200     LABEL; 000042
4300     REPLYAGAIN1, TALLYFORCE, REPLYAGAIN2, REPLYAGAIN3, CHANGERATES, 000043
4400     REPLYAGAIN4, REPLYAGAIN5, REPLYAGAIN6, EXIT, INPUTLEVELS, INPUTRATES; 000044
4500     DEFINE; 000045
4600     TA = INTEGER(URAY[17], 7)*, 000046
4700     TAT = INTEGER(URAY[7], 10)*; 000047
4800     $PAGE; 000048
4900     DIDRUN = FALSE; 000049
5000     IF MYSELF.TASKVALUE EQ 1 500 000050
5100     THEN BEGIN 000051
5200     WRITE(OUTPUT, <"THIS PROGRAM CAN NOT BE RUN FROM THIS DEVICE">); 000052
5300     GO TO THEEND; 000053
5400     END; 000054
5500     DIDRUN = TRUE; 000055
5600     WRITE(OUTPUT, <48"0C0011", 48"0D25", 48"0D25", 48"0D25", 000056
5700     48"0D25", 48"0D25", 48"0D25", X10, 000057

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5800     "AAA     GGGGG  EEEEEEE  FFFFFF  000000  RRRRRR  CCCCCC", 000058
5900     "     EEEEEEE", 48"0D25", X9, "AA AA  GG  GG  EE  FF  00", 000059
6000     "     00  RR  RR  CC  CC  EE", 48"0D25", X8, "AA  AA  GO", X7, 000060
6100     "     EEEE  FFFF  00  00  RR  RR  CC  EEEE", 48"0D25", 000061
6200     X8, "AAAAAAA  GG  GGGG  EE  FF  00  00  RRRRR  CC", 000062
6300     X7, "EE", 48"0D25", X8, "AA  AA  GG  GG  EE  FF  00", 000063
6400     "     00  RR  RR  CC  CC  EE", 48"0D25", X8, "AA  AA  GGGGG", 000064
6500     "     EEEEEEE  FF  000000  RR  RR  CCCCCC  EEEEEEE", 000065
6600     48"0D25", 48"0D25", "MODIFICATIONS AS OF: DEC 79">); 000066
6700     WHEN(6): 000067
6800     INPUTDATA: 000068
6900     GOTFILE:=TRUE; 000069
7000     TIM:=TIME(2); 000070
7100     ACCESSIONSINPUT := FALSE; 000071
7200     YRSTOSTEADY := 0; 000072
7300     FOR I1:=0 STEP 1 UNTIL 31 000073
7400     DO FOR I2:=0 STEP 1 UNTIL 31 DO FORCE[I1, I2] := 0; 000074
7500     FOR I1:=0 STEP 1 UNTIL 28 DO RETRATES[I1]:=1.0; 000075
7600 000076
7700     WRITE(OUTPUT, <48"0C0011">); 000077
7800     WRITE(OUTPUT, <"AGGREGATE MODEL TO AGE SELECTED ELEMENTS OF THE FORCE", 000078
7900     48"0D25", "ENTER YOUR 7-DIGIT AUTOVON NUMBER (I.E. 4872233). 48"0D25", 000079
8000     "THIS DATA IS ESSENTIAL FOR FILE MAINTENANCE AND MAY BE USED TO", 000080
8100     48"0D25", "VERIFY UTILIZATION.", 48"0D25", "IF YOU DESIRE TO START", 000081
8200     "OVER AGAIN WHILE YOU ARE WORKING IN AGEOFORCE", 48"0D25", 000082
8300     "JUST ENTER AN 'END' RESPONSE WHEN A 'YES' OR 'NO' RESPONSE IS", 000083
8400     "REQUESTED.", 48"0D25", "BE CAREFUL THOUGH, IF YOU ENTER 'END'", 000084
8500     "ANY OTHER TIME", 48"0D25", "THE PROGRAM MAY TERMINATE ABNORMALLY.", 000085
8600     48"3C0013">); 000086
8700     READ(INPUT[TIMELIMIT 600], <A12>, REPTNAME[0]); 000087
8800     % TIMELIMIT STAYS IN EFFECT FOR ENTIRE PROGRAM 000088
8900     IF NOT REPTNAME[0] IN FIRSTNUM THEN GO TO INPUTDATA; 000089
9000     FOR I1:=1 STEP 1 UNTIL 6 DO 000090
9100     IF NOT REPTNAME[I1] IN RESTNUM THEN GO TO INPUTDATA; 000091
9200     REPLACE TITLEARRAY[0] BY ". FOR 28"; 000092
9300     REPLACE TITLEARRAY[0] BY "AGEOFORCE/DATA/A"; 000093
9400     FOR I1:=0 STEP 1 UNTIL 10 DO 000094
9500     IF REPTNAME[I1] = " " THEN 000095
9600     REPLACE REPTNAME[I1] BY ". 000096
9700     REPLACE TITLEARRAY[16] BY REPTNAME[0] FOR I1; 000097
9800     REPLACE FORCEGROUPS.TITLE BY TITLEARRAY[0]; 000098
9900     IF NOT FORCEGROUPS.RESIDENT 000099
10000    THEN BEGIN 000100
10100    WRITE(OUTPUT, <48"0C00", "YOU DO NOT HAVE A SAVE FILE FOR FORCE ", 000101
10200    "AND RATE DATA.", 48"0D25", "DO YOU WANT TO CREATE A PERMANENT ", 000102
10300    "FILE? (ENTER YES OR NO).", 48"3C0013">); 000103
10400    READ(INPUT, <A3>, REPLY[0]); 000104
10500    IF REPLY[0] EQL "END" THEN GO FINISHED; 000105
10600    IF REPLY[0] EQL "NO" 000106
10700    THEN BEGIN 000107
10800    GOTFILE:=FALSE; 000108
10900    FOR I1:=0 STEP 1 UNTIL 99 DO 000109
11000    BEGIN 000110
11100    READ(UTIL[11, 4, URAY[0]]); 000111
11200    IF URAY[0] = REPTNAME[0] FOR ? 000112
11300    THEN BEGIN 000113
11400    REC:=I1; 000114
11500    GO TO AGEYEARS; 000115
11600    END; 000116
11700    END; 000117

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11800      FOR I1:=0 STEP 1 UNTIL 99 DO          000111
11900      BEGIN
12000      READ(UTIL[11],4,URAY[0]);
12100      IF URAY[0] = "0" THEN
12200      BEGIN
12300      REPLACE URAY[0] BY REPTNAME[0] FOR 7;
12400      REC:=11;
12500      REPLACE URAY[7] BY "0" FOR 17;
12600      WRITE(UTIL[11],4,URAY[0]);
12700      I1:=100;
12800      LOCK(UTIL);
12900      END;
13000      END;
13100      GO TO AGEYEARS;
13200      END;
13300      ELSE BEGIN
13400      FORCEGROUPS.MYUSE := 2;
13500      FOR I1:=0 STEP 1 UNTIL 19 DO          000130
13600      WRITE(FORCEGROUPS[11,<30T6>],FOR I2 := 0 STEP 1
13700      UNTIL 29 DO (I3:=0));
13800      FOR I1:=20 STEP 1 UNTIL 39 DO          000131
13900      WRITE(FORCEGROUPS[11,<30F6.4>],FOR I2 := 0 STEP 1
14000      UNTIL 29 DO (I3:=1,0));
14100      LOCK(FORCEGROUPS);
14200      FORCEGROUPS.MYUSE := 3;
14300      FOR I1:=0 STEP 1 UNTIL 99 DO          000141
14400      BEGIN
14500      READ(UTIL[11],4,URAY[0]);
14600      IF URAY[0] = "0"
14700      THEN BEGIN
14800      REPLACE URAY[0] BY REPTNAME[0] FOR 7;
14900      REC:=11;
15000      REPLACE URAY[7] BY "0" FOR 17;
15100      WRITE(UTIL[11],4,URAY[0]);
15200      I1:=100;
15300      LOCK(UTIL);
15400      END;
15500      END;
15600      END;
15700      END
15800      ELSE BEGIN
15900      FOR I1:=0 STEP 1 UNTIL 99 DO          000150
16000      BEGIN
16100      READ(UTIL[11],4,URAY[0]);
16200      IF URAY[0] = REPNAME[0] FOR 7
16300      THEN BEGIN
16400      REC:=11;
16500      GO TO EXT;
16600      END;
16700      END;
16800      EXT:
16900      WRITE(OUTPUT,<48"OC00", "DO YOU WISH TO MAKE CHANGES TO ", 000161
17000      "YOUR DATA? (ENTER YES OR NO)", 000171
17100      48"3C0013">);
17200      READ(INPUT,<48>,REPLY[0]);
17300      IF REPLY[0] EQL "END" THEN GO FINISHED; 000172
17400      IF REPLY[0] EQL "NO" THEN GO TO AGEYEARS; 000173
17500      END;
17600
17700      REPLYAGAIN2: 000177

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17800 WRITE(OUTPUT,<48"0C00", "DO YOU WISH TO CHANGE ANY OF THE FORCE ", 00017
17900 " GROUPS (ENTER YES OR NO)?", 48"3C0013">); 00017
18000 READ(INPUT,<A3>,REPLY[0]); 00018
18100 IF REPLY[0] EQL "END" THEN GO FINISHED; 00018
18200 IF REPLY[0] NEQ "YES" AND REPLY[0] NEQ "NO" 00018
18300 THEN GO TO REPLYAGAIN2; 00018
18400 IF REPLY[0] EQL "NO" 00018
18500 THEN GO TO CHANGERATES; 00018
18600 00018
18700 REPLYAGAIN3: 00018
18800 WRITE(OUTPUT,<48"0C00", "THERE ARE 20 FORCE GROUPS AVAILABLE FOR YOUR", 00018
18900 " USE.", 48"0D25", "ENTER THE NUMERIC CODE(1-20) OF THE GROUP" 00018
19000 , 48"0D25", " YOU WISH TO USE.", 48"3C0013">); 00019
19100 READ(INPUT,/,11); 00019
19200 IF 11 LSS 1 OR 11 GTR 20 00019
19300 THEN GO TO REPLYAGAIN3; 00019
19400 READ(FORCEGROUPS[11-11,<3016>],FOR 12:=0 STEP 1 UNTIL 29 DO FORCE[12,01]; 00019
19500 WRITE(OUTPUT,<48"0C0011", "THE CONFIGURATION OF GROUP ", 12, " IS ", 00019
19600 "PRESENTLY AS FOLLOWS", 48"0D25", X1, "YR=GP", 00019
19700 48"0D25", X2, "1 - 10", X2, 10(X1,16), 48"0D25", X1, "11 - 20", X2, 00019
19800 10(X1,16), 48"0D25", X1, "21 - 30", X2, 10(X1,16), 00019
19900 48"0D25", "TO CHANGE THE FORCE LEVELS, INPUT", 00019
20000 "YEAR GROUP LEVEL", "YEAR GROUP", 48"0D25", "LEVEL", ETC, "(EX.", 00020
20100 " 2, 364, 12, 1024, *)", 48"0D25", "TERMINATE INPUT WITH AN", 00020
20200 " ASTERISK.", 48"0D25", "YOU CAN CHANGE ANY OR ALL", 00020
20300 " YEAR GROUPS THIS WAY.", 48"3C0013">, 00020
20400 11, FOR 12:=0 STEP 1 UNTIL 29 DO FORCE[12,01]; 00020
20500 00020
20600 READ(INPUT,/,FOR 12:=0 STEP 1 UNTIL 59 DO FORCEHOLD[12]); 00020
20700 FOR 12 := 0 STEP 2 UNTIL 58 DO 00020
20800 IF (12 := FORCEHOLD[12])=0 AND 10 LEQ 00 AND (10 MOD 1) 00020
20900 EQL 0 00020
21000 THEN FORCE[13-1,01 := FORCEHOLD[12+1]; 00021
21100 00021
21200 00021
21300 WRITE(FORCEGROUPS[11-11,<3016>],FOR 12:=0 STEP 1 UNTIL 29 00021
21400 DO FORCE[12,01]); 00021
21500 LOCK(FORCEGROUPS); 00021
21600 FOR 12:=0 STEP 1 UNTIL 29 DO FORCE[12,01]:=0; 00021
21700 FOR 12:=0 STEP 1 UNTIL 59 DO FORCEHOLD[12]:=0; 00021
21800 GO TO REPLYAGAIN2; 00021
21900 00021
22000 CHANGERATES: 00022
22100 WRITE(OUTPUT,<48"0C00", "DO YOU WISH TO CHANGE THE RETENTION ", 00022
22200 " RATES", 48"0D25", "(ENTER YES OR NO) ?", 48"3C0013">); 00022
22300 READ(INPUT,<A3>,REPLY[0]); 00022
22400 IF REPLY[0] EQL "END" THEN GO FINISHED; 00022
22500 IF REPLY[0] EQL "NO" 00022
22600 THEN GO TO AGEYEARS; 00022
22700 IF REPLY[0] NEQ "YES" 00022
22800 THEN GO TO CHANGERATES; 00022
22900 00022
23000 REPLYAGAIN5: 00023
23100 WRITE(OUTPUT,<48"0C00", "RETENTION RATE ", 00023
23200 " GROUPS 1- THRU 20- ARE AVAILABLE", 48"0D25", 00023
23300 "ENTER THE NUMERIC CODE OF THE GROUP YOU WISH TO CHANGE.", 00023
23400 48"3C0013">); 00023
23500 READ(INPUT,/,11); 00023
23600 IF 11 LSS 1 OR 11 GTR 20 00023
23700 THEN GO TO REPLYAGAIN5; 00023

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23800 READ(FORCEGROUPS[19+11],<29F6.4>,FOR I2:=0 STEP 1 UNTIL 28 000238
23900 DO RETRATES[I2]); 000239
24000 WRITE(OUTPUT,<48"0C00", "THE CURRENT RATES ARE!", 48"0D25", X2, "YRS", 000240
24100 48"0D25", "1 - 10", X2, 10(X1,F5.3), 48"0D25", "11 - 20", X2, 000241
24200 10(X1,F5.3), 48"0D25", "21 - 29", X2, 9(X1,F5.3), 48"0D2525", 000242
24300 "TO CHANGE RATES, INPUT YEARGROUP RATE, YEARGROUP RATE, ETC.", 48"0D25", 000243
24400 "(TEXT 2, 453, 15, 376, *),", 48"0D25", "TERMINATE INPUT WITH AN ", 000244
24500 "ASTERISK.", 48"0C0013">,FOR I2:=0 STEP 1 UNTIL 28 DO RETRATES[I2]); 000245
24600 READ(INPUT,/,FOR I2:=0 STEP 1 UNTIL 57 DO RETENHOLD[I2]); 000246
24700 FOR T2:=0 STEP 2 UNTIL 56 DO 000247
24900 IF (RHOLD := RETENHOLD[I2]) GTR 0 AND RHOLD LEQ 30 AND (RHOLD 000248
25000 MOD 1) EQ 0 000249
25100 THEN RETRATES[RHOLD - 1] := RETENHOLD[I2+1]; 000250
25200 000251
25300 000252
25400 WRITE(FORCEGROUPS[19+11],<29F6.4>,FOR I2:=0 STEP 1 UNTIL 28 000253
25500 DO RETRATES[I2]); 000254
25600 FOR I2:=0 STEP 1 UNTIL 28 DO RETRATES[I2]:=T,0; 000255
25700 FOR I2:=0 STEP 1 UNTIL 57 DO RETENHOLD[I2] := 0; 000256
25800 LOCK(FORCEGROUPS); 000257
25900 GO TO CHANGERATES; 000258
26000 000259
26100 AGEYFARS: 000260
26200 WRITE(OUTPUT,<48"0C00", "HOW MANY YEARS DO YOU WISH TO AGE THE FORCE", 000261
26300 " - 1-29 ?", 48"3C0013">); 000262
26400 READ(INPUT,/,YRSTOAGE); 000263
26500 IF YRSTOAGE LSS 1 OR YRSTOAGE GTR 29 000264
26600 THEN GO TO ACEYEARS; 000265
26700 000266
26800 DISPLAYFARS: 000267
26900 WRITE(OUTPUT,<48"0C00", "HOW MANY YEAR GROUPS DO YOU WISH TO DISPLAY", 000268
27000 " - 1-30 ?", 48"3C0013">); 000269
27100 READ(INPUT,/,YRCPSDISP); 000270
27200 IF YRCPSDISP LSS 1 OR YRCPSDISP GTR 30 000271
27300 THEN GO TO DISPLAYFARS; 000272
27400 WRITE(OUTPUT,<48"0C00", "IF YOU WANT TO ACHIEVE AND MAINTAIN A ", 000273
27500 "STEADY-STATE FORCE, ", 48"0D25", "THEN ENTER THE FORCE LEVEL", 000274
27600 " - YOU WANT TO ACHIEVE", 48"0D25", "OTHERWISE ENTER 0 (ZERO)", 000275
27700 48"3C0013">); 000276
27800 READ(INPUT,/,STEADYFORCE); 000277
27900 IF STEADYFORCE NEQ 0 000278
28000 THEN STEADYSTATE := TRUE 000279
28100 ELSE STEADYSTATE := FALSE; 000280
28200 IF STEADYSTATE 000281
28300 THEN BEGIN % BB 000282
28400 STEADYEAR: 000283
28500 WRITE(OUTPUT,<48"0C00", "HOW MANY YEARS DO YOU WANT TO TAKE ", 000284
28600 48"0D25", "TO FIRST ACHIEVE THE STEADY-STATE FORCE? (1-29)", 000285
28700 48"3C0013">); 000286
28800 READ(INPUT,/,YRSTOSTEADY); 000287
28900 IF YRSTOSTEADY LSS 1 OR YRSTOSTEADY GTR 29 000288
29000 THEN GO TO STEADYEAR; 000289
29100 END; % BB 000290
29200 000291
29300 REPLYAGAIN!: 000292
29400 IF NOT GOTFILE THEN GO TO INPUTLEVELS; 000293
29500 WRITE(OUTPUT,<48"0C00", "IF YOU WOULD LIKE TO SELECT A FORCE GR", 000294
29600 "UP THEN ENTER YES ELSE NO", 48"3C0013">); 000295
29700 READ(INPUT,<A3>,REPLY{0}); 000296

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29800 IF REPLY[0] EQL "END" THEN GO FINISHED; 000298
29900 IF REPLY[0] NEQ "YES" AND REPLY[0] NEQ "NO" 000299
30000 THEN GO TO REPLYAGAIN1; 000300
30100 IF REPLY[0] EQL "YES" 000301
30200 THEN BEGIN 000302
30300 WRITE(OUTPUT,<48"0C00", "THERE ARE 20 FORCE GROUPS AVAILABLE FOR", 000303
30400 " YOUR USE.", 48"0D25", "ENTER THE NUMERIC CODE(1-20) OF", 000304
30500 48"0D25", " THE GROUP YOU WISH TO USE.", 48"3C0013">); 000305
30600 READ(INPUT,/,11); 000306
30700 IF 11 LSS 1 OR 11 GTR 20 000307
30800 THEN GO TO REPLYAGAIN1; 000308
30900 READ(FORCEGROUPS[11-1],<3016>,FOR 12:=0 STEP 1 UNTIL 29 000309
31000 DO FORCE[12,0]); 000310
31100 GO TO TALLYFORCE; 000311
31200 END; 000312
31300 INPUTLEVELS: 000313
31400 WRITE(OUTPUT,<48"0C00", "ENTER 30 YEAR GROUP FORCE LEVELS,ASTERISK", 000314
31500 " WILL TERMINATE INPUT", 48"3C0013">); 000315
31600 READ(INPUT,/,FOR 11:=0 STEP 1 UNTIL 29 DO FORCE[11,0]); 000316
31700 000317
31800 TALLYFORCE: 000318
31900 FOR 11:= 0 STEP 1 UNTIL 29 DO FORCE[31,01] := FORCE[31,0] + FORCE[11,0]; 000319
32000 000320
32100 REPLYAGAIN4: 000321
32200 IF NOT GOTFILE THEN GO TO INPUTRATES; 000322
32300 WRITE(OUTPUT,<48"0C00", "DO YOU WISH TO USE THE RETENTION RA", 000323
32400 " TES (ENTER YES OR NO?", 48"3C0013">); 000324
32500 READ(INPUT,<A3>,REPLY[0]); 000325
32600 IF REPLY[0] EQL "END" THEN GO FINISHED; 000326
32700 IF REPLY[0] NEQ "YES" AND REPLY[0] NEQ "NO" 000327
32800 THEN GO TO REPLYAGATN4; 000328
32900 IF REPLY[0] EQL "YES" 000329
33000 THEN BEGIN 000330
33100 000331
33200 REPLYAGATN6: 000332
33300 WRITE(OUTPUT,<48"0C00", 000333
33400 "RETENTION RATE GROUPS 1 THRU 20 ARE AVAILABLE FOR USE.", 000334
33500 48"0D25", "ENTER THE NUMERIC CODE", 000335
33600 " OF THE GROUP YOU WISH TO USE.", 48"3C0013">); 000336
33700 READ(INPUT,/,11); 000337
33800 IF 11 LSS 1 OR 11 GTR 20 000338
33900 THEN GO TO REPLYAGATN6; 000339
34000 READ(FORCEGROUPS[19+11],<29F6.4>,FOR 12:=0 STEP 1 UNTIL 28 000340
34100 DO RETRATES[12]); 000341
34200 GO TO OLDRATES; 000342
34300 END; 000343
34400 INPUTRATES: 000344
34500 FOR 12:=0 STEP 1 UNTIL 28 DO RETRATES[12]:=1.0; 000345
34600 WRITE(OUTPUT,<48"0C00", "ENTER 29 RETENTION RATES, AN ASTERISK WILL ", 000346
34700 " TERMINATE INPUT.", 48"0D25", "ENTER WITH DECIMAL POINT. ", 000347
34800 "(EXAMPLE-123.1,0,-456.7,-994)", 48"3C0013">); 000346
34900 READ(INPUT,/,FOR 11:=0 STEP 1 UNTIL 28 DO RETRATES[11]); 000348
35000 000350
35100 OLDRATES: 000351
35200 WRITE(OUTPUT,<48"0C00", "DO YOU INTEND TO USE THE SAME RETENTION RATES", 000352
35300 " FOR EVERY SIMULATION YEAR?", 48"0D25", "ENTER YES OR NO", 48"3C0013">); 000353
35400 000354
35500 RATECHGREQ: 000355
35600 READ(INPUT,<A3>,REPLY[0]); 000356
35700 IF REPLY[0] EQL "END" THEN GO FINISHED; 000357

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35800 IF REPLY[0] NEQ "YES" AND REPLY[0] NEQ "NO" 000358
35900 THEN GO TO RATECHGREQ 000359
36000 IF REPLY[0] EQ "NO" 000360
36100 THEN CHGRATES := TRUE 000361
36200 ELSE CHGRATES := FALSE; 000362
36300 IF STEADYSTATE 000363
36400 THEN GO TO STEADYPROC; 000364
36500 000365
36600 ACCESSIONSIN: 000366
36700 WRITE(OUTPUT, <48"0C00", "IF YOU WISH TO INPUT ACCESSIONS ENTER YES," 000367
36800 " ELSE ENTER NO", 48"3C0013">); 000368
36900 READ(INPUT, <A3>, REPLY[0]); 000369
37000 IF REPLY[0] EQ "END" THEN GO FINISHED; 000370
37100 IF REPLY[0], EQ "YES" 000371
37200 THEN BEGIN % CO 000372
37300 ACCESSIONSINPUT := TRUE; 000373
37400 WRITE(OUTPUT, <48"0C00", "ENTER ACCESSIONS FOR EACH OF THE ", I2, 000374
37500 " SIMULATION YEARS.", 48"0D25", "EX: 100, 300, 500 ETC.", 000375
37600 48"3C0013">, YRSTOAGE); 000376
37700 READ(INPUT, /, FOR I1:=1 STEP 1 UNTIL YRSTOAGE DO FORCE[0, I1]); 000377
37800 END 000378
37900 ELSE IF REPLY[0] NEQ "NO" 000379
38000 THEN GO TO ACCESSIONSIN; 000380
38100 000381
38200 OLDACCS: 000382
38300 000383
38400 REENTRY: 000384
38500 WRITE(OUTPUT, <48"0C00", 70("x"), 48"0D25", X33, "SUMMARY OF INPUT", 000385
38600 48"0D25", X3, "NAME OF REPORT: ", A12, 48"0D25", X3, 000386
38700 "YEARS TO USE THE FORCE: ", I2, 48"0D25", X3, "YEAR GROUPS", 000387
38800 " TO DISPLAY: ", I2, 48"0D25", X3, "STEADY-STATE/DESTREND", 000388
38900 48"11", A3, X3, I6>, REPNAM[0], YRSTOAGE, YRGPSDISP, 000389
39000 IF STEADYSTATE THEN "YES" ELSE "NO", STEADYFORCE); 000390
39100 WRITE(OUTPUT, <X3, "STEADY STATE IN HOW MANY YEARS: ", I2, 48"0D25", X3, 000391
39200 "YR-GP", X25, "YEAR ONE FORCE LEVELS", 48"0D25", X3, "1-TO", X2, 000392
39300 10(I6, X1), 48"0D25", 000393
39400 X3, "11-20", X1, 10(I6, X1), 48"0D25", X3, "21-30", X1, 10(I6, X1), 48"0D25", 000394
39500 X4, "YRS", X26, "RETENTION RATES", 48"0D25", X3, "1-10", X2, 000395
39600 TOTF5, 3, X1), 48"0D25", X2, "11-20", X2, TOTF5, 3, X1), 48"0D25", X2, "21-29" 000396
39700 , X2, 9(F5, 3, X1), 48"11">, YRSTOSTEADY, FOR I1 := 0 000397
39800 STEP 1 UNTIL 29 DO FORCE[1, 0], FOR I1:=0 STEP 1 UNTIL 28 DO 000398
39900 RETRATES[1]); 000399
40000 IF ACCESSIONSINPUT THEN 000400
40100 WRITE(OUTPUT, <X4, "YRS", X26, "ACCESSIONS", 48"0D25", X3, "2-11", X2, 000401
40200 10(I6, X1), 48"0D25", X3, "12-21", X1, 10(I6, X1), 48"0D25", X3, "22-30", X1, 000402
40300 9(I6, X1), 48"11">, FOR I1:=1 STEP 1 UNTIL 29 DO FORCE[0, I1]); 000403
40400 WRITE(OUTPUT, <70("x"), 48"TT">); 000404
40500 000405
40600 NEXTPAGE: 000406
40700 WRITE(OUTPUT, <"ENTER OK FOR NEXT PAGE OF REPORT", 48"3C0013">); 000407
40800 READ(INPUT, <A2>, REPLY[0]); 000408
40900 IF REPLY[0] NEQ "OK" 000409
41000 THEN GO TO NEXTPAGE; 000410
41100 FOR I1:=1 STEP 1 UNTIL YRSTOAGE DO 000411
41200 BEGIN % DD 000412
41300 FORCE[31, I1] := FORCE[0, I1]; 000413
41400 FOR I2:=1 STEP 1 UNTIL 29 DO 000414
41500 BEGIN % EE 000415
41600 FORCE[12, I1] := FORCE[12-1, I1-1] * RETRATES[12-1]; 000416
41700 FORCE[31, I1] := FORCE[31, I1] + FORCE[12, I1]; 000417

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41800     FORCE[30,11] := FORCE[30,11] + FORCE[12-1,11-1] - FORCE[12,11];      00041
41900     END; % OF 12 LOOP
42000     IF STEADYSTATE AND 11 GTR YRSTOSTEADY
42100     THEN BEGIN % FF
42200     TEMP := FORCE[31,11] - STEADYFORCE;
42300     IF TEMP LSS 0
42400     THEN BEGIN % GG
42500     FORCE[0,11] := FORCE[0,11] - TEMP;
42600     FORCE[31,11] := STEADYFORCE;
42700     END; % GO
42800     IF TEMP GTR 0
42900     THEN BEGIN % HH
43000     IF 13:=FORCE[0,11] - TEMP GEQ 0
43100     THEN BEGIN % II
43200     FORCE[31,11] := STEADYFORCE;
43300     FORCE[0,11] := FORCE[0,11] - TEMP;
43400     END % II
43500     ELSE BEGIN % JJ
43600     FORCE[31,11] := FORCE[31,11] - FORCE[0,11];
43700     FORCE[0,11] := 0;
43800     END; % JJ
43900     END; % HH
44000     END; % FF
44100     "IF 11 NEQ YRSTOSTEADY AND CHGRCATES
44200     THEN BEGIN
44300     CHGCHECK:
44400     WRITE(OUTPUT,<48"0C00", "DO YOU WISH TO INPUT NEW RETENTION",
44500     "RATES FOR SIM YR ",12,48"0D25", "ENTER YES OR NO",
44600     48"3C0013">,11+1);
44700     READ(INPUT,<A3>,REPLY[0]);
44800     IF REPLY[0] EQL "END" THEN GO FINISHED;
44900     IF REPLY[0] NEQ "YES" AND REPLY[0] NEQ "NO"
45000     THEN GO TO CHGCHFCK;
45100     IF REPLY[0] EQL "YES"
45200     THEN BEGIN
45300     FOR 15:=0 STEP 1 UNTIL 28 DO RETRATES[15] := 0;
45400     WRITE(OUTPUT,<48"0C00", "ENTER 29 RETENTION RATES, ",
45500     "ASTERISK WILL TERMINATE INPUT.",48"0D25",
45600     "ENTER WITH DECIMAL POINT. ");
45700     " EXAMPLE: .123,1.0,.456",
45800     "7,.994",48"3C0013">);
45900     READ(INPUT,/,FOR 15:=0 STEP 1 UNTIL 28 DO RETRATES[15]);
46000     WRITETOUTPUT,<48"0C00",X4,"YRST",X17,
46100     "RETENTION RATES FOR SIM YR ",12,
46200     48"0D25",X3,"1-10",X2,10(F5.3,X1),
46300     48"0D25",X2,"11-20",X2,10(F5.3,X1),
46400     48"0D25",X2,"21-29",X2,9(F5.3,X1),48"11">,
46500     11+1,FOR 15:=0 STEP 1 UNTIL 28 DO RETRATES[15]);
46600     NEXTPAGE4:
46700     WRITE(OUTPUT,<"ENTER OK WHEN READY TO CONTINUE",
46800     48"3C0013">);
46900     READ(INPUT,<A2>,REPLY[0]);
47000     IF REPLY[0] NEQ "OK"
47100     THEN GO TO NEXTPAGE4;
47200     END;
47300     END;
47400     END; % DD
47500     GO WINDUP;
47600
47700     STEADYPROC;

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47800 FOR I3:=1 STEP 1 UNTIL 30 DO 00047
47900   FORCE[0,131]:=0; 00047
48000 TEMP := (STEADYFORCE - FORCE[31,0]) / YRSTOSTEADY; 00048
48100 IF TEMP LSS 0 00048
48200 THEN TEMP := 0; 00048
48300 00048
48400 NOTYET: 00048
48500 FOR I3:=1 STEP 1 UNTIL YRSTOSTEADY DO 00048
48600   FORCE[0,131]:=FORCE[0,131] + TEMP; 00048
48700 FOR I3:=1 STEP 1 UNTIL YRSTOSTEADY DO 00048
48800   BEGIN % KK 00048
48900     FOR I4:=1 STEP 1 UNTIL 29 DO 00048
49000       BEGIN % LL 00049
49100         FORCE[14,131]:=FORCE[14-1,13-1] * RETRATES[14-1]; 00049
49200         FORCE[31,131]:=FORCE[31,131] + FORCE[14,131]; 00049
49300       END; % LL 00049
49400     FORCE[31,131]:=FORCE[31,131] + FORCE[0,131]; 00049
49500   END; % KK 00049
49600 IF FORCE[31,YRSTOSTEADY] NEQ STEADYFORCE 00049
49700 THEN I1:=99 00049
49800 ELSE BEGIN % KK1 00049
49900   I1:=0; 00049
50000   TEMP := (STEADYFORCE - FORCE[31,YRSTOSTEADY]) / YRSTOSTEADY; 00050
50100   IF TEMP LSS 1 THEN TEMP := 1; 00050
50200 END; % KK1 00050
50300 FOR I3:=1 STEP 1 UNTIL YRSTOSTEADY DO 00050
50400   FOR I4:=1 STEP 1 UNTIL 31 DO 00050
50500     FORCE[14,131]:=0; 00050
50600     IF I1 EQL 99 00050
50700       THEN BEGIN % MM 00050
50800         FOR I3:=YRSTOSTEADY + 1 STEP 1 UNTIL YRSTOAGE DO 00050
50900           FORCE[0,131]:=999999; 00050
51000           GO TO REENTRY; 00051
51100         END; % MM 00051
51200       GO NOTYET; 00051
51300     00051
51400     WINDUP: 00051
51500     WRITE(OUTPUT,<48"0C00",X19,A12,X5,12," YEAR FORCE STRUCTURE",48"11">; 00051
51600       REPTNAME(U),YRSTOAGE); 00051
51700     WRITE(OUTPUT,SPACE 11,<X1,"YEAR",X25,"YEAR",48"11">); 00051
51800     WRITE(OUTPUT,<48"11",X1,"GROUP",X6,"1",5(X9,12)>,FOR I1:=2 STEP 1 UNTIL 00051
51900       IF YRSTOAGE LEO 5 THEN YRSTOAGE + 1 ELSE 6 DO I1); 00051
52000     WRITE(OUTPUT,<(X2,12,(X5,16),4"11")>,FOR I1:=1 IF YRGPSDISP-LEQ-15 THEN 00052
52100       YRGPSDISP-1 ELSE 14 STEP -1 UNTIL 0 DO[I1+1,IF YRSTOAGE LEQ 5 THEN 00052
52200         YRSTOAGE + 1 ELSE 6,FOR I2:=0 STEP 1 UNTIL IF YRSTOAGE LEQ 5 THEN 00052
52300         YRSTOAGE ELSE 5 DO FORCE[11,12]); 00052
52400     WRITE(OUTPUT,<48"11",X1,"LOSS",X4,16,5(X5,16)>,FOR I2:=0 STEP 1 UNTIL IF 00052
52500       YRSTOAGE + 1 LEQ 6 THEN YRSTOAGE ELSE 5 DO FORCE[30,12]); 00052
52600     WRITE(OUTPUT,<48"11",X1,"STRN",X4,16,5(X5,16)>,FOR I2:=0 STEP 1 UNTIL IF 00052
52700       YRSTOAGE + 1 LEQ 6 THEN YRSTOAGE ELSE 5 DO FORCE[31,12]); 00052
52800 IF YRGPSDISP-LEQ-15 AND YRSTOAGE-LEQ-5 00052
52900 THEN GO TO FINISHED; 00052
53000 IF YRGPSDISP GTR 15 00053
53100 THEN BEGIN % NN 00053
53200 NEXTPAGE: 00053
53300   WRITE(OUTPUT,<"ENTER OK FOR NEXT PAGE OF REPORT",48"3C0013">); 00053
53400   READ(INPUT,<A2>,REPLY[0]); 00053
53500   IF REPLY[0] NEQ "OK" 00053
53600   THEN GO TO NEXTPAGE; 00053
53700   WRITE(OUTPUT,<48"0C00",X19,A12,X5,12," YEAR FORCE STRUCTURE",48"11">); 00053

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53800      REPTNAME[0],YRSTOAGE+1);          000538
53900      WRITE(OUTPUT[SPACE 11,<X1,"YEAR",X25,"YEAR",48"11">]); 000539
54000      WRITE(OUTPUT,<48"11",X1,"GROUP",X6,"1",5(X9,12)>,FOR 11:=2 STEP 1 UNTIL 000540
54100      IF YRSTOAGE LEQ 5 THEN YRSTOAGE + 1 ELSE 6 DO 11); 000541
54200      WRITE(OUTPUT,<(X2,12,*(X5,16),48"11")>,FOR 11:=IF YRGPSD1SP LEQ 30 THEN 000542
54300      YRGPSD1SP-1 ELSE 29 STEP -1 UNTIL 15 DO[11+1,IF YRSTOAGE LEQ 5 THEN 000543
54400      YRSTOAGE + 1 ELSE 6,FOR 12:=0 STEP 1 UNTIL IF YRSTOAGE LEQ 5 THEN 000544
54500      YRSTOAGE ELSE 5 DO FORCE[11,12]); 000545
54600      WRITE(OUTPUT,<48"11",X1,"LOSS",X4,16,5(X5,16)>,FOR 12:=0 STEP 1 UNTIL IF 000546
54700      YRSTOAGE + 1 LEQ 6 THEN YRSTOAGE ELSE 5 DO FORCE[30,12]); 000547
54800      WRITE(OUTPUT,<48"11",X1,"STRN",X4,16,5(X5,16)>,FOR 12:=0 STEP 1 UNTIL IF 000548
54900      YRSTOAGE + 1 LEQ 6 THEN YRSTOAGE ELSE 5 DO FORCE[31,12]); 000549
55000      END; % NN 000550
55100      IF YRSTOAGE LEQ 5 000551
55200      THEN GO TO FINISHED; 000552
55300      NEXTPAGE1: 000553
55400      WRITE(OUTPUT,<"ENTER OK FOR NEXT PAGE OF REPORT",48"3C0013">); 000554
55500      READ(INPUT,<A2>,REPLY[0]); 000555
55600      IF REPLY[0] NEQ "OK" 000556
55700      THEN GO TO NEXTPAGE1; 000557
55800      IF YRSTOAGE GEQ 12 000558
55900      THEN GO TO BIGPICTURE; 000559
56000      WRITE(OUTPUT,<48"0C00",X19,A12,X5,12," YEAR FORCE STRUCTURE",48"11">, 000560
56100      REPTNAME[0],YRSTOAGE+1); 000561
56200      WRITE(OUTPUT[SPACE 11,<X1,"YEAR",X25,"YEAR",48"11">); 000562
56300      WRITE(OUTPUT,<48"11",X1,"GROUP",X6,"7",5(X9,12)>,FOR 11:=8 STEP 1 UNTIL 000563
56400      IF YRSTOAGE LEQ 11 THEN YRSTOAGE + 1 ELSE 12 DO 11); 000564
56500      WRITE(OUTPUT,<(X2,12,*(X5,16),48"11")>,FOR 11:=IF YRGPSD1SP LEQ 15 THEN 000565
56600      YRGPSD1SP-1 ELSE 14 STEP -1 UNTIL 0 DO[11+1,IF YRSTOAGE LEQ 11 THEN 000566
56700      YRSTOAGE-5 ELSE 6,FOR 12:=6 STEP 1 UNTIL IF YRSTOAGE LEQ 11 THEN 000567
56800      YRSTOAGE ELSE 11 DO FORCE[11,12]); 000568
56900      WRITE(OUTPUT,<48"11",X1,"LOSS",X4,16,5(X5,16)>,FOR 12:=6 STEP 1 UNTIL 000569
57000      IF YRSTOAGE LEQ 11 THEN YRSTOAGE ELSE 11 DO FORCE[30,12]); 000570
57100      WRITE(OUTPUT,<48"11",X1,"STRN",X4,16,5(X5,16)>,FOR 12:=6 STEP 1 UNTIL 000571
57200      IF YRSTOAGE LEQ 11 THEN YRSTOAGE ELSE 11 DO FORCE[31,12]); 000572
57300      IF YRGPSD1SP LEQ 15 000573
57400      THEN GO TO FINISHED; 000574
57500      NEXTPAGE3: 000575
57600      WRITE(OUTPUT,<"ENTER OK FOR NEXT PAGE OF REPORT",48"3C0013">); 000576
57700      READ(INPUT,<A2>,REPLY[0]); 000577
57800      IF REPLY[0] NEQ "OK" 000578
57900      THEN GO TO NEXTPAGE3; 000579
58000      IF YRSTOAGE LEQ 11 000580
58100      THEN GO TO NEXTPAGE3; 000581
58200      WRITE(OUTPUT,<48"0C00",X19,A12,X5,12," YEAR FORCE STRUCTURE",48"11">, 000582
58300      REPTNAME[0],YRSTOAGE+1); 000583
58400      WRITE(OUTPUT[SPACE 11,<X1,"YEAR",X25,"YEAR",48"11">); 000584
58500      WRITE(OUTPUT,<48"11",X1,"GROUP",X6,"7",5(X9,12)>,FOR 11:=8 STEP 1 UNTIL 000585
58600      IF YRSTOAGE LEQ 11 THEN YRSTOAGE + 1 ELSE 12 DO 11); 000586
58700      WRITE(OUTPUT,<(X2,12,*(X5,16),48"11")>,FOR 11:=IF YRGPSD1SP LEQ 30 THEN 000587
58800      YRGPSD1SP-1 ELSE 29 STEP -1 UNTIL 15 DO[11+1,IF YRSTOAGE LEQ 11 THEN 000588
58900      YRSTOAGE-5 ELSE 6, FOR 12:=6 STEP 1 UNTIL IF YRSTOAGE LEQ 11 THEN 000589
59000      YRSTOAGE ELSE 11 DO FORCE[11,12]); 000590
59100      WRITE(OUTPUT,<48"11",X1,"LOSS",X4,16,5(X5,16)>,FOR 12:=6 STEP 1 UNTIL 000591
59200      IF YRSTOAGE LEQ 11 THEN YRSTOAGE ELSE 11 DO FORCE[30,12]); 000592
59300      WRITE(OUTPUT,<48"11",X1,"STRN",X4,16,5(X5,16)>,FOR 12:=6 STEP 1 UNTIL 000593
59400      IF YRSTOAGE LEQ 11 THEN YRSTOAGE ELSE 11 DO FORCE[31,12]); 000594
59500      GO TO FINISHED; 000595
59600      BIGPICTURE: 000596
59700      000597

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59800  WRITE(OUTPUT,<48"0C00",X19,A12,X5,12," YEAR FORCE STRUCTURE",48"11">, 00059
59900  REPTNAME[0],YRSTOAGE+1); 00059
60000  WRITE(OUTPUT[SPACE 11,<X1,"YEAR",X25,"YEAR",48"11">); 00060
60100  WRITE(OUTPUT,<48"11",X1,"GROUP",X4,"10",4(X9,12)>,FOR 11:=15 STEP 5 00060
60200  UNTIL YRSTOAGE + 1 DO 11, IF YRSTOAGE+1 NEQ 11-5 THEN 00060
60300  YRSTOAGE+1); 00060
60400  FOR 11:=1 IF YRGPSDISP LEO 15 THEN YRGPSDISP-1 ELSE 14 STEP -1 UNTIL 0 DO 00060
60500  WRITE(OUTPUT,<48"11",X2,12,X4,16,5(X5,16)>,11+1,FOR 12:=9 STEP 5 UNTIL 00060
60600  YRSTOAGE DO FORCE[11,12],IF YRSTOAGE NEQ 12-5 THEN 00060
60700  FORCE[11,YRSTOAGE]); 00060
60800  WRITE(OUTPUT,<48"11",X1,"LOSS",X3,16,5(X5,16)>,FOR 12:=9 STEP 5 UNTIL 00060
60900  YRSTOAGE DO FORCE[30,12],IF YRSTOAGE NEQ 12-5 THEN 00060
61000  FORCE[30,YRSTOAGE]); 00061
61100  WRITE(OUTPUT,<48"11",X1,"STRN",X3,16,5(X5,16)>,FOR 12:=9 STEP 5 UNTIL 00061
61200  YRSTOAGE DO FORCE[31,12],IF YRSTOAGE NEQ 12-5 THEN 00061
61300  FORCE[31,YRSTOAGE]); 00061
61400  IF YRGPSDISP LEQ 15 00061
61500  THEN GO TO FINISHED; 00061
61600  00061
61700  NEXTPAGE2: 00061
61800  WRITE(OUTPUT,<"ENTER OK FOR NEXT PAGE OF REPORT",48"3C0013">); 00061
61900  READ(INPUT,<A2>,REPLY[01]); 00061
62000  IF REPLY[01] NEQ "OK" 00062
62100  THEN GO TO NEXTPAGE2; 00062
62200  WRITE(OUTPUT,<48"0C00",X19,A12,X5,12," YEAR FORCE STRUCTURE",48"11">, 00062
62300  REPTNAME[01],YRSTOAGE+1); 00062
62400  WRITE(OUTPUT[SPACE 11,<X1,"YEAR",X25,"YEAR",48"11">); 00062
62500  WRITE(OUTPUT,<48"11",X1,"GROUP",X4,"10",4(X9,12)>,FOR 11:=15 STEP 5 00062
62600  UNTIL YRSTOAGE + 1 DO 11,IF YRSTOAGE + 1 NEQ 11-5 THEN 00062
62700  YRSTOAGE+1); 00062
62800  FOR 11:=1 IF YRGPSDISP LEQ 30 THEN YRGPSDISP-1 ELSE 29 STEP -1 UNTIL 15 DO 00062
62900  WRITE(OUTPUT,<48"11",X2,12,X4,16,5(X5,16)>,11+1,FOR 12:=9 STEP 5 UNTIL 00062
63000  YRSTOAGE DO FORCE[11,12],IF YRSTOAGE NEQ 12-5 THEN 00063
63100  FORCE[11,YRSTOAGE]); 00063
63200  WRITE(OUTPUT,<48"11",X1,"LOSS",X3,16,5(X5,16)>,FOR 12:=9 STEP 5 UNTIL 00063
63300  YRSTOAGE DO FORCE[30,12],IF YRSTOAGE NEQ 12-5 THEN 00063
63400  FORCE[30,YRSTOAGE]); 00063
63500  WRITE(OUTPUT,<48"11",X1,"STRN",X3,16,5(X5,16)>,FOR 12:=9 STEP 5 UNTIL 00063
63600  YRSTOAGE DO FORCE[31,12],IF YRSTOAGE NEQ 12-5 THEN 00063
63700  FORCE[31,YRSTOAGE]); 00063
63800  00063
63900  FINISHED: 00063
64000  WRITE(OUTPUT,<"IF YOU WISH TO RUN AGAIN ENTER YES ELSE NO ", 00064
64100  48"3C0013">); 00064
64200  READ(INPUT,<A3>,REPLY[0]); 00064
64300  IF REPLY[0] EQL "END" THEN GO FINISHED; 00064
64400  IF REPLY[0] EQL "YES" 00064
64500  THEN BEGIN 00064
64600  IF DIDRUN 00064
64700  THEN BEGIN 00064
64800  TIM:=TIME(2)-TIM; 00064
64900  TA1:=TA+1; 00064
65000  TAT1:=TAT+TIM; 00065
65100  REPLACE URAY[7] BY TAT1 FOR 10 DIGITS; 00065
65200  REPLACE URAY[17] BY TA1 FOR 7 DIGITS; 00065
65300  WRITE(UTIL[REC],4,URAY[0]); 00065
65400  LOCK(UTIL); 00065
65500  LOCK(FORCEGROUPS); 00065
65600  END; 00065
65700  GO TO INPUTDATA; 00065
```

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65800      END;          000658
65900  IF REPLY[0] NEQ "NO"  000659
66000  THEN BEGIN          000660
66100      WRITE(OUTPUT,<48"0C0011">); 000661
66200      GO TO FINISHED; 000662
66300      END;          000663
66400
66500  THEEND:          000665
66600  IF DIDRUN          000666
66700  THEN BEGIN          000667
66800      TIM:=TIME[2]-TIME; 000668
66900      TAT1:=TAT+TIM; 000669
67000      TA1:=TA+1; 000670
67100      REPLACE URAY[7] BY TAT1 FOR 10 DIGITS; 000671
67200      REPLACE URAY[17] BY TA1 FOR 7 DIGITS; 000672
67300      WRITE(UTIL[REC],4,URAY[0]); 000673
67400      LOCK(UTIL); 000674
67500      END;          000675
67600      WRITE(OUTPUT,<48"0C00",X10,"***** END OF PROGRAM *****",48"3C0013">); 000676
67700      END. % AA          000677
```